

THE ASTROPHYSICAL JOURNAL  
CONTENTS OF VOLUME 649, PART 1

2006 SEPTEMBER 20, NUMBER 1

	Page
EARLY SUPERSYMMETRIC COLD DARK MATTER SUBSTRUCTURE © <i>Jüry Diemand, Michael Kuhlen, &amp; Piero Madau</i>	1
Ly $\alpha$ RADIATION FROM COLLAPSING PROTOGALAXIES. I. CHARACTERISTICS OF THE EMERGENT SPECTRUM © <i>Mark Dijkstra, Zoltán Haiman, &amp; Marco Spaans</i>	14
Ly $\alpha$ RADIATION FROM COLLAPSING PROTOGALAXIES. II. OBSERVATIONAL EVIDENCE FOR GAS INFALL © <i>Mark Dijkstra, Zoltán Haiman, &amp; Marco Spaans</i>	37
PRECISION MEASUREMENTS OF HIGHER ORDER ANGULAR GALAXY CORRELATIONS USING 11 MILLION SDSS GALAXIES © <i>Ashley J. Ross, Robert J. Brunner, &amp; Adam D. Myers</i>	48
THE DRAGONS SURVEY: A SEARCH FOR HIGH-REDSHIFT RADIO GALAXIES AND HEAVILY OBSCURED ACTIVE GALACTIC NUCLEI © <i>S. J. Schmidt, A. J. Connolly, &amp; A. M. Hopkins</i>	63
SPITZER QUASAR AND ULIRG EVOLUTION STUDY (QUEST). I. THE ORIGIN OF THE FAR-INFRARED CONTINUUM OF QSOS © <i>M. Schweitzer, D. Lutz, E. Sturm, A. Contursi, L. J. Tacconi, M. D. Lehnert, K. M. Dasyra, R. Genzel, S. Veilleux, D. Rupke, D.-C. Kim, A. J. Baker, H. Netzer, A. Sternberg, J. Mazzarella, &amp; S. Lord</i>	79
STELLAR REMNANTS IN GALACTIC NUCLEI: MASS SEGREGATION © <i>Marc Freitag, Pau Amaro-Seoane, &amp; Vassiliki Kalogera</i>	91
STACKING WEAK-LENSING SIGNALS OF SUNYAEV-ZEL'DOVICH CLUSTERS TO CONSTRAIN CLUSTER PHYSICS <i>Carolyn Sealfon, Licia Verde, &amp; Raul Jimenez</i>	118
A SEARCH FOR LOW SURFACE BRIGHTNESS STRUCTURE AROUND COMPACT NARROW EMISSION LINE GALAXIES <i>Elizabeth J. Barton, Liese van Zee, &amp; Matthew A. Bershad</i>	129
THE SURVEY FOR IONIZATION IN NEUTRAL GAS GALAXIES. II. THE STAR FORMATION RATE DENSITY OF THE LOCAL UNIVERSE <i>D. J. Hanish, G. R. Meurer, H. C. Ferguson, M. A. Zwaan, T. M. Heckman, L. Staveley-Smith, J. Bland-Hawthorn, V. A. Kilborn, B. S. Koribalski, M. E. Putman, E. V. Ryan-Weber, M. S. Oey, R. C. Kennicutt Jr., P. M. Knezek, M. J. Meyer, R. C. Smith, R. L. Webster, M. A. Dopita, M. T. Doyle, M. J. Drinkwater, K. C. Freeman, &amp; J. K. Werk</i>	150
THE H I CONTENT OF E+A GALAXIES <i>P. Buyle, D. Michielsen, S. De Rijcke, D. J. Pisano, H. Dejonghe, &amp; K. Freeman</i>	163
THE STAR FORMATION HISTORY OF THE DISK OF THE STARBURST GALAXY M82 © <i>Y. D. Mayya, A. Bressan, L. Carrasco, &amp; L. Herniz-Martinez</i>	172
MOLECULAR GAS DYNAMICS IN NGC 6946: A BAR-DRIVEN NUCLEAR STARBURST "CAUGHT IN THE ACT" <i>Eva Schinnerer, Torsten Böker, Eric Emsellem, &amp; Ute Lisenfeld</i>	181
EXPLORING HALO SUBSTRUCTURE WITH GIANT STARS. XI. THE TIDAL TAILS OF THE CARINA DWARF SPHEROIDAL GALAXY AND THE DISCOVERY OF MAGELLANIC CLOUD STARS IN THE CARINA FOREGROUND © <i>Ricardo R. Muñoz, Steven R. Majewski, Simone Zaggia, William E. Kunkel, Peter M. Frinchaboy, David L. Nidever, Denija Crnojevic, Richard J. Patterson, Jeffrey D. Crane, Kathryn V. Johnston, Sangmo Tony Sohn, Rebecca Bernstein, &amp; Stephen Shectman</i>	201
SYNTHESIS IMAGING OF DENSE MOLECULAR GAS IN THE N113 H II REGION OF THE LARGE MAGELLANIC CLOUD <i>Tony Wong, John B. Whiteoak, Jürgen Ott, Yi-nan Chin, &amp; Maria R. Cunningham</i>	224
DISCOVERY OF 14 RADIO PULSARS IN A SURVEY OF THE MAGELLANIC CLOUDS © <i>R. N. Manchester, G. Fan, A. G. Lyne, V. M. Kaspi, &amp; F. Crawford</i>	235

	Page
AN EMPIRICAL TOOL TO DERIVE METALLICITY, REDDENING, AND DISTANCE FOR OLD STELLAR POPULATIONS FROM NEAR-INFRARED COLOR MAGNITUDE DIAGRAMS <i>Francesco R. Ferraro, Elena Valenti, &amp; Livia Origlia</i>	243
HEAVY-ELEMENT ABUNDANCES IN GIANT STARS IN 47 TUCANAE <i>E. C. Wylie, P. L. Cottrell, C. A. Sneden, &amp; J. C. Lattanzio</i>	248
XMM-NEWTON OBSERVATIONS OF THE SUPERNOVA REMNANT IC 443. I. SOFT X-RAY EMISSION FROM SHOCKED INTERSTELLAR MEDIUM © <i>E. Troja, F. Bocchino, &amp; F. Reale</i>	258
ATOMIC CARBON IN THE AFGL 333 CLOUD <i>Takeshi Sakai, Tomoharu Oka, &amp; Satoshi Yamamoto</i>	268
ENTRAINMENT MECHANISMS FOR OUTFLOWS IN THE L1551 STAR-FORMING REGION <i>Irena Stojimirović, Gopal Narayanan, Ronald L. Snell, &amp; John Bally</i>	280
HIGH-RESOLUTION INFRARED IMAGING OF HERSCHEL 36 SE: A SHOWCASE FOR THE INFLUENCE OF MASSIVE STARS IN CLUSTER ENVIRONMENTS <i>M. Goto, B. Stecklum, H. Linz, M. Feldt, Th. Henning, I. Pascucci, &amp; T. Usuda</i>	299
MULTIPLICITY AND OPTICAL EXCESS ACROSS THE SUBSTELLAR BOUNDARY IN TAURUS <i>Adam L. Kraus, Russel J. White, &amp; Lynne A. Hillenbrand</i>	306
NEUTRINO OSCILLATION EFFECTS ON SUPERNOVA LIGHT-ELEMENT SYNTHESIS <i>Takashi Yoshida, Toshitaka Kajino, Hidekazu Yokomakura, Keiichi Kimura, Akira Takamura, &amp; Dieter H. Hartmann</i>	319
A SPITZER SPACE TELESCOPE STUDY OF SN 2002hh: AN INFRARED ECHO FROM A TYPE IIP SUPERNOVA <i>W. P. S. Meikle, S. Mattila, C. L. Gerardy, R. Kotak, M. Pozzo, S. D. van Dyk, D. Farrah, R. A. Fesen, A. V. Filippenko, C. Fransson, P. Lundqvist, J. Sollerman, &amp; J. C. Wheeler</i>	332
HOT ACCRETION WITH CONDUCTION: SPONTANEOUS THERMAL OUTFLOWS © <i>Takamitsu Tanaka &amp; Kristen Menou</i>	345
THREE-DIMENSIONAL SIMULATIONS OF SPHERICAL ACCRETION FLOWS WITH SMALL-SCALE MAGNETIC FIELDS <i>Igor V. Igumenshchev</i>	361
ORBITAL PARAMETERS FOR THE X-RAY PULSAR IGR J16393-4643 <i>Thomas W. J. Thompson, John A. Tomsick, Richard E. Rothschild, J. J. M. in 't Zand, &amp; Roland Walter</i>	373
GEMINI SPECTROSCOPY OF THE ULTRACOMPACT BINARY CANDIDATE V407 VULPECULAE <i>D. Steeghs, T. R. Marsh, S. C. C. Barros, G. Nelemans, P. J. Groot, G. H. A. Roelofs, G. Ramsay, &amp; M. Cropper</i>	382
MASSSES OF ASTROMETRICALLY DISCOVERED AND IMAGED BINARIES: G78-28AB AND GJ 231.IBC <i>Steven H. Pravdo, Stuart B. Shaklan, Sloane J. Wiktorowicz, Shri Kulkarni, James P. Lloyd, Frantz Martinache, Peter G. Tuthill, &amp; Michael J. Ireland</i>	389
OPTICAL INTENSITY INTERFEROMETRY WITH ATMOSPHERIC CERENKOV TELESCOPE ARRAYS <i>S. Le Bohec &amp; J. Holder</i>	399
CORRELATION OF MIRA'S SiO MASER PROPERTIES <i>Gordon C. McIntosh</i>	406
MIRA B REJUVENATED © <i>Brian E. Wood &amp; Margarita Karovska</i>	410
DUSTY VORTICES IN PROTOPLANETARY DISKS <i>S. Inaba &amp; P. Barge</i>	415
A KECK HIRES DOPPLER SEARCH FOR PLANETS ORBITING METAL-POOR DWARFS. I. TESTING GIANT PLANET FORMATION AND MIGRATION SCENARIOS <i>Alessandro Sozzetti, Guillermo Torres, David W. Latham, Bruce W. Carney, Robert P. Stefanik, Alan P. Boss, John B. Laird, &amp; Sylvain G. Korzennik</i>	428
EXPLORING THE FREQUENCY OF CLOSE-IN JOVIAN PLANETS AROUND M DWARFS <i>Michael Endl, William D. Cochran, Martin Kürster, Diane B. Paulson, Robert A. Wittenmyer, Phillip J. MacQueen, &amp; Robert G. Tull</i>	436
SOLAR RADIUS MEASUREMENTS AT MOUNT WILSON OBSERVATORY <i>S. Lefebvre, L. Bertello, R. K. Ulrich, J. E. Boyden, &amp; J. P. Rozelot</i>	444
THE FLUX-ROPE SCALING OF THE ACCELERATION OF CORONAL MASS EJECTIONS AND ERUPTIVE PROMINENCES <i>J. Chen, C. Marqué, A. Vourlidas, J. Krall, &amp; P. W. Schuck</i>	452
COMPARISON OF MAGNETIC FLUX DISTRIBUTION BETWEEN A CORONAL HOLE AND A QUIET REGION <i>Jun Zhang, Jun Ma, &amp; Haimin Wang</i>	464
HEAVY-ION ELEMENTAL ABUNDANCES IN LARGE SOLAR ENERGETIC PARTICLE EVENTS AND THEIR IMPLICATIONS FOR THE SEED POPULATION © <i>M. I. Desai, G. M. Mason, R. E. Gold, S. M. Krimigis, C. M. S. Cohen, R. A. Mewaldt, J. E. Mazur, &amp; J. R. Dwyer</i>	470

# CONTENTS

v

RAPID CHANGES OF PHOTOSPHERIC MAGNETIC FIELDS AROUND FLARING MAGNETIC NEUTRAL LINES <i>Haimin Wang</i>	Page 490
SIMULATING AND PREDICTING SOLAR CYCLES USING A FLUX-TRANSPORT DYNAMO <i>Mausumi Dikpati &amp; Peter A. Gilman</i>	498
DOPPLER SHIFT CORRELATIONS IN THE SOLAR TRANSITION REGION <i>G. A. Doschek</i>	515
THE SOLAR HEAVY-ELEMENT ABUNDANCES. I. CONSTRAINTS FROM STELLAR INTERIORS ① <i>Franck Delahaye &amp; M. H. Pinsonneault</i>	529
SWIFT X-RAY TELESCOPE OBSERVATIONS OF THE DEEP IMPACT COLLISION ① <i>R. Willingale, P. T. O'Brien, S. W. H. Cowley, G. H. Jones, D. J. McComas, K. O. Mason, J. P. Osborne, A. Wells, M. Chester, S. Hunsberger, D. N. Burrows, N. Gehrels, J. A. Nousek, L. Angelini, L. R. Cominsky, S. L. Snowden, &amp; G. Chincarini</i>	541
A METHOD TO REMOVE FRINGES FROM IMAGES USING WAVELETS ① <i>Patricio M. Rojo &amp; Joseph Harrington</i>	553
ERRATUM: "DISCOVERY OF WATER MASER EMISSION IN EIGHT AGNs WITH 70 m ANTENNAS OF NASA'S DEEP SPACE NETWORK" (ApJ, 638, 100 [2006]) <i>P. T. Kondratko, L. J. Greenhill, J. M. Moran, J. E. J. Lovell, T. B. H. Kuiper, D. L. Jauncey, L. B. Cameron, J. F. Gómez, C. García-Miró, E. Moll, I. de Gregorio-Monsalvo, J. McCallum, &amp; E. Jiménez-Bailón</i>	561
2006 OCTOBER 1, NUMBER 2	
WHAT DO WE REALLY KNOW ABOUT COSMIC ACCELERATION? <i>Charles Shapiro &amp; Michael S. Turner</i>	563
FEEDBACK FROM CLUSTERED SOURCES DURING REIONIZATION ① <i>Roban Hultman Kramer, Zoltán Haiman, &amp; S. Peng Oh</i>	570
DETAILED THEORETICAL PREDICTIONS FOR THE OUTSKIRTS OF DARK MATTER HALOS <i>Juan E. Betancort-Rijo, Miguel A. Sanchez-Conde, Francisco Prada, &amp; Santiago G. Patiri</i>	579
ANGULAR MOMENTUM TRANSFER IN DARK MATTER HALOS: ERASING THE CUSP <i>C. Tonini, A. Lapi, &amp; P. Salucci</i>	591
THE SLOAN LENS ACS SURVEY. III. THE STRUCTURE AND FORMATION OF EARLY-TYPE GALAXIES AND THEIR EVOLUTION SINCE $z \approx 1$ ① <i>Léon V. E. Koopmans, Tommaso Treu, Adam S. Bolton, Scott Burles, &amp; Leonidas A. Moustakas</i>	599
PROBING THE COEVOLUTION OF SUPERMASSIVE BLACK HOLES AND GALAXIES USING GRAVITATIONALLY LENSED QUASAR HOSTS <i>Chien Y. Peng, Chris D. Impey, Hans-Walter Rix, Christopher S. Kochanek, Charles R. Keeton, Emilio E. Falco, Joseph Lehar, &amp; Brian A. McLeod</i>	616
A SEARCH FOR H <sub>2</sub> O IN THE STRONGLY LENSED QSO MG 0751+2716 AT $z = 3.2$ <i>Dominik A. Riechers, Axel Weiss, Fabian Walter, Christopher L. Carilli, &amp; Kirsten K. Knudsen</i>	635
EVOLUTION OF X-RAY CLUSTER SCALING RELATIONS IN SIMULATIONS WITH RADIATIVE COOLING AND NONGRAVITATIONAL HEATING ① <i>Orrarujee Muanwong, Scott T. Kay, &amp; Peter A. Thomas</i>	640
X-RAY PROPERTIES OF INTERMEDIATE-REDSHIFT GROUPS OF GALAXIES <i>Tesla E. Jeltema, John S. Mulchaey, Lori M. Lubin, Piero Rosati, &amp; Hans Böhringer</i>	649
A PANORAMIC MID-INFRARED SURVEY OF TWO DISTANT CLUSTERS ① <i>J. E. Geach, Ian Smail, R. S. Ellis, S. M. Moran, G. P. Smith, T. Treu, J.-P. Kneib, A. C. Edge, &amp; T. Kodama</i>	661
LONG RXTE OBSERVATIONS OF A2163 ① <i>Yoel Rephaeli, Duane Gruber, &amp; Yinon Arieli</i>	673
OBJECTIVE SUBCLASS DETERMINATION OF SLOAN DIGITAL SKY SURVEY SPECTROSCOPICALLY UNCLASSIFIED OBJECTS ① <i>David Bazell, David J. Miller, &amp; Mark SubbaRao</i>	678
STELLAR POPULATIONS IN THE NUCLEI OF LATE-TYPE SPIRAL GALAXIES ① <i>C. J. Walcher, T. Böker, S. Charlot, L. C. Ho, H.-W. Rix, J. Rossa, J. C. Shields, &amp; R. P. van der Marel</i>	692
IS THERE A FUNDAMENTAL LINE FOR DISK GALAXIES? ① <i>Joshua D. Simon, Francisco Prada, José M. Vilchez, Leo Blitz, &amp; Brant Robertson</i>	709
LUMINOUS INFRARED GALAXIES IN THE LOCAL UNIVERSE ① <i>J. L. Wang, X. Y. Xia, S. Mao, C. Cao, Hong Wu, &amp; Z. G. Deng</i>	722

	Page
XMM-NEWTON ARCHIVAL STUDY OF THE ULTRALUMINOUS X-RAY POPULATION IN NEARBY GALAXIES © <i>Lisa M. Winter, Richard F. Mushotzky, &amp; Christopher S. Reynolds</i>	730
DEEP NEAR-INFRARED IMAGING OF AN EMBEDDED CLUSTER IN THE EXTREME OUTER GALAXY: CENSUS OF SUPERNOVA-TRIGGERED STAR FORMATION © <i>Chikako Yasui, Naoto Kobayashi, Alan T. Tokunaga, Hiroshi Terada, &amp; Masao Saito</i>	753
THE BUBBLING GALACTIC DISK © <i>E. Churchwell, M. S. Povich, D. Allen, M. G. Taylor, M. R. Meade, B. L. Babler, R. Indebetouw, C. Watson, B. A. Whitney, M. G. Wolfire, T. M. Bania, R. A. Benjamin, D. P. Clemens, M. Cohen, C. J. Cyganowski, J. M. Jackson, H. A. Kobulnicky, J. S. Mathis, E. P. Mercer, S. R. Stolovy, B. Uzen, D. F. Watson, &amp; M. J. Wolff</i>	759
SIMULATED X-RAY EMISSION FOR A RUNAWAY MODEL OF KEPLER'S SUPERNOVA REMNANT <i>Pablo F. Velázquez, Carlos D. Vigh, Estela M. Reynoso, Daniel O. Gómez, &amp; E. Matias Schneider</i>	779
THE NATURE OF INTERSTELLAR GAS TOWARD THE PLEIADES REVEALED IN ABSORPTION LINES <i>A. M. Ritchey, M. Martínez, K. Pan, S. R. Federman, &amp; D. L. Lambert</i>	788
CAN WE TRUST THE DUST? EVIDENCE OF DUST SEGREGATION IN MOLECULAR CLOUDS <i>Paolo Padoan, Laurent Cambrézy, Mika Juvela, Alexei Kritsuk, William D. Langer, &amp; Michael L. Norman</i>	807
SPITZER OBSERVATIONS OF HH 54 AND HH 7-11: MAPPING THE H <sub>2</sub> ORTHO-TO-PARA RATIO IN SHOCKED MOLECULAR GAS <i>David A. Neufeld, Gary J. Melnick, Paule Sonnentrucker, Edwin A. Bergin, Joel D. Green, Kyoung Hee Kim, Dan M. Watson, William J. Forrest, &amp; Judith L. Pipher</i>	816
ADAPTIVE OPTICS SPECTROSCOPY OF THE [Fe II] OUTFLOWS FROM HL TAURI AND RW AURIGAE <i>Tae-Soo Pyo, Masahiko Hayashi, Naoto Kobayashi, Alan T. Tokunaga, Hiroshi Terada, Hideki Takami, Naruhisa Takato, Christopher J. Davis, Michihiro Takami, Saeko S. Hayashi, Wolfgang Gässler, Shin Oya, Yutaka Hayano, Yukiko Kamata, Yusuke Minowa, Masanori Iye, Tomonori Usuda, Takayuki Nishikawa, &amp; Ko Nedachi</i>	836
A UNIFIED MODEL FOR BIPOLAR OUTFLOWS FROM YOUNG STARS <i>Hsien Shang, Anthony Allen, Zhi-Yun Li, Chun-Fan Liu, Mei-Yin Chou, &amp; Jeffrey Anderson</i>	845
AN EQUATORIAL WIND FROM THE MASSIVE YOUNG STELLAR OBJECT S140 IRS 1 <i>Melvin G. Hoare</i>	856
TESTING THE DISK REGULATION PARADIGM WITH SPITZER OBSERVATIONS. I. ROTATION PERIODS OF PRE-MAIN-SEQUENCE STARS IN THE IC 348 CLUSTER <i>Lucas Cieza &amp; Nairn Baliber</i>	862
STAR-DISK COUPLING BY A TIME-VARYING MAGNETIC FIELD <i>Ellen G. Zweibel, K. Tabetha Hole, &amp; Robert D. Mathieu</i>	879
MILLIMETER MULTIPLICITY IN NGC 6334 I AND I(N) © <i>T. R. Hunter, C. L. Brogan, S. T. Megeath, K. M. Menten, H. Beuther, &amp; S. Thorwirth</i>	888
DISCOVERY OF A YOUNG SUBSTELLAR COMPANION IN CHAMAELEON <i>K. I. Luhman, J. C. Wilson, W. Brandner, M. F. Skrutskie, M. J. Nelson, J. D. Smith, D. E. Peterson, M. C. Cushing, &amp; E. Young</i>	894
NEAR-INFRARED SYNTHETIC IMAGES OF PROTOSTELLAR DISKS AND ENVELOPES <i>D. P. Stark, B. A. Whitney, K. Stassun, &amp; K. Wood</i>	900
A SIMULTANEOUS OPTICAL AND X-RAY VARIABILITY STUDY OF THE ORION NEBULA CLUSTER. I. INCIDENCE OF TIME-CORRELATED X-RAY/OPTICAL VARIATIONS © <i>Keivan G. Stassun, M. van den Berg, Eric Feigelson, &amp; Ettore Flaccomio</i>	914
LOW MACH NUMBER MODELING OF TYPE Ia SUPERNOVAE. II. ENERGY EVOLUTION <i>A. S. Almgren, J. B. Bell, C. A. Rendleman, &amp; M. Zingale</i>	927
SECONDARY MAXIMUM IN THE NEAR-INFRARED LIGHT CURVES OF TYPE Ia SUPERNOVAE © <i>Daniel Kasen</i>	939
REMOVING THE MICROLENSING BLENDING-PARALLAX DEGENERACY USING SOURCE VARIABILITY <i>R. J. Assef, A. Gould, C. Afonso, J. N. Albert, J. Andersen, R. Ansari, É. Aubourg, P. Barette, J. P. Beaulieu, X. Charlot, C. Coutures, R. Ferlet, P. Fouqué, J. F. Glicenstein, B. Goldman, D. Graff, M. Gros, J. Haissinski, C. Hamadache, J. de Kat, L. Le Guillou, É. Lesquoy, C. Loup, C. Magneville, J. B. Marquette, É. Maurice, A. Maury, A. Milsztajn, M. Moniez, N. Palanque-Delabrouille, O. Perdereau, Y. R. Rahal, J. Rich, M. Spiro, P. Tisserand, A. Vidal-Madjar, L. Vigroux, S. Zylberajch (THE EROS-2 COLLABORATION), D. P. Bennett, A. C. Becker, K. Griest, T. Vandehei, D. L. Welch (FOR THE MACHO COLLABORATION), A. Udalski, M. K. Szymański, M. Kubiak, G. Pietrzyński, I. Soszyński, O. Szweczyk, &amp; L. Wyrzykowski (THE OGLE COLLABORATION)</i>	954
THE DISTRIBUTION OF SIO IN THE CIRCUMSTELLAR ENVELOPE AROUND IRC +10216 © <i>Fredrik L. Schöier, David Fong, Hans Olofsson, Qizhou Zhang, &amp; Nimesh Patel</i>	965
ORBITAL EVOLUTION OF ALGO BINARIES WITH A CIRCUMBINARY DISK <i>Wen-Cong Chen, Xiang-Dong Li, &amp; Sheng-Bang Qian</i>	973
CAPELLA CORONA REVISITED: A COMBINED VIEW FROM XMM-NEWTON RGS AND CHANDRA HETGS AND LETGS <i>M. F. Gu, R. Gupta, J. R. Peterson, M. Sako, &amp; S. M. Kahn</i>	979

# CONTENTS

vii

Page

EFFECTS OF SECULAR INTERACTIONS IN EXTRASOLAR PLANETARY SYSTEMS <i>Fred C. Adams &amp; Gregory Laughlin</i>	992
LONG-TERM EVOLUTION OF CLOSE PLANETS INCLUDING THE EFFECTS OF SECULAR INTERACTIONS <i>Fred C. Adams &amp; Gregory Laughlin</i>	1004
HABITABILITY OF KNOWN EXOPLANETARY SYSTEMS BASED ON MEASURED STELLAR PROPERTIES <i>Barrie W. Jones, P. Nick Sleep, &amp; David R. Underwood</i>	1010
RESOLVING THE SURFACES OF EXTRASOLAR PLANETS WITH SECONDARY ECLIPSE LIGHT CURVES <i>Peter K. G. Williams, David Charbonneau, Curtis S. Cooper, Adam P. Showman, &amp; Jonathan J. Fortney</i>	1020
SPITZER 24 $\mu$ m SURVEY OF DEBRIS DISKS IN THE PLEIADES <i>Nadya Gorlova, George H. Rieke, James Muzerolle, John R. Stauffer, Nick Siegler, Erick T. Young, &amp; John H. Stansberry</i>	1028
A SPITZER INFRARED RADIUS FOR THE TRANSITING EXTRASOLAR PLANET HD 209458b © <i>L. Jeremy Richardson, Joseph Harrington, Sara Seager, &amp; Drake Deming</i>	1043
DYNAMICS AND DISEQUILIBRIUM CARBON CHEMISTRY IN HOT JUPITER ATMOSPHERES, WITH APPLICATION TO HD 209458b <i>Curtis S. Cooper &amp; Adam P. Showman</i>	1048
SPONTANEOUS CURRENT SHEETS IN AN IDEAL HYDROMAGNETIC FLUID <i>B. C. Low</i>	1064
CORONAL LOOP WIDTHS AND PRESSURE SCALE HEIGHTS <i>G. J. D. Petrie</i>	1078
A NEW AND FAST WAY TO RECONSTRUCT A NONLINEAR FORCE-FREE FIELD IN THE SOLAR CORONA © <i>M. T. Song, C. Fang, Y. H. Tang, S. T. Wu, &amp; Y. A. Zhang</i>	1084
FORCE BALANCE ANALYSIS OF A CORONAL MAGNETIC FLUX ROPE IN EQUILIBRIUM OR ERUPTION <i>Y. Chen, G. Q. Li, &amp; Y. Q. Hu</i>	1093
A STATISTICAL STUDY OF MAIN AND RESIDUAL ACCELERATIONS OF CORONAL MASS EJECTIONS <i>J. Zhang &amp; K. P. Dere</i>	1100
THEORETICAL INVESTIGATION OF THE ONSETS OF TYPE II RADIO BURSTS DURING SOLAR ERUPTIONS © <i>Jun Lin, Salvatore Mancuso, &amp; Angelos Vourlidas</i>	1110
RHESSI OBSERVATION OF CHROMOSPHERIC EVAPORATION <i>Wei Liu, Siming Liu, Yan Wei Jiang, &amp; Vahé Petrosian</i>	1124
THE SEISMIC CORRELATION SIGNATURE OF MODERATE-SCALE FLOW IN THE SUN <i>M. F. Woodard</i>	1140
SOLAR CONVECTION ZONE DYNAMICS: HOW SENSITIVE ARE INVERSIONS TO SUBTLE DYNAMO FEATURES? <i>R. Howe, M. Rempel, J. Christensen-Dalsgaard, F. Hill, R. Komm, R. M. Larsen, J. Schou, &amp; M. J. Thompson</i>	1155
FORMALDEHYDE IN COMETS C/1995 O1 (HALE-BOPP), C/2002 T7 (LINEAR), AND C/2001 Q4 (NEAT): INVESTIGATING THE COMETARY ORIGIN OF H <sub>2</sub> CO <i>Stefanie N. Milam, Anthony J. Remijan, Maria Womack, Leif Abrell, L. M. Ziurys, Susan Wyckoff, A. J. Apponi, D. N. Friedel, L. E. Snyder, J. M. Veal, Patrick Palmer, L. M. Woodney, Michael F. A'Hearn, J. R. Forster, M. C. H. Wright, I. de Pater, S. Choi, &amp; M. Gesmundo</i>	1169
SILICATES DO NUCLEATE IN OXYGEN-RICH CIRCUMSTELLAR OUTFLOWS: NEW VAPOR PRESSURE DATA FOR SiO <i>Joseph A. Nuth III &amp; Frank T. Ferguson</i>	1178
ERRATUM: "THE $\epsilon$ CHAMAELEONTIS YOUNG STELLAR GROUP AND THE CHARACTERIZATION OF SPARSE STELLAR CLUSTERS" (ApJ, 599, 1207 [2003]) <i>Eric D. Feigelson, Warrick A. Lawson, &amp; Gordon P. Garmire</i>	1184











# THE ASTROPHYSICAL JOURNAL LETTERS

## CONTENTS OF VOLUME 649, PART 2

2006 SEPTEMBER 20, NUMBER 1

	Page
THE FUNDAMENTAL PLANE IN RX J0142.0+2131: A GALAXY CLUSTER MERGER AT $z = 0.28$ <i>Jordi Barr, Inger Jorgensen, Kristin Chiboucas, Roger Davies, and Marcel Bergmann</i>	L1
ARE THE RADIATIVE PROPERTIES OF LONG GAMMA-RAY BURSTS UNIVERSAL? <i>David Eichler and Amir Levinson</i>	L5
INTEGRAL IBIS CENSUS OF THE SKY BEYOND 100 keV <sup>Ⓔ</sup> <i>A. Bazzano, J. B. Stephen, M. Fionocchi, A. J. Bird, L. Bassani, A. J. Dean, A. Malizia, P. Ubertini, F. Lebrun, R. Walter, and C. Winkler</i>	L9
INTERSTELLAR TURBULENCE DRIVING BY GALACTIC SPIRAL SHOCKS <i>Chang-Goo Kim, Woong-Tae Kim, and Eve C. Ostriker</i>	L13
DETECTION OF C <sub>2</sub> O IN IRC +10216: OXYGEN-CARBON CHAIN CHEMISTRY IN THE OUTER ENVELOPE <i>E. D. Tenenbaum, A. J. Apponi, L. M. Ziurys, M. Agúndez, J. Cernicharo, J. R. Pardo, and M. Guélin</i>	L17
ON THE NATURE OF THE HARD X-RAY SOURCE IGR J2018+4043 <i>A. M. Bykov, A. M. Krassilchikov, Yu. A. Uvarov, J. A. Kennea, G. G. Pavlov, G. M. Dubner, E. B. Giacani, H. Bloemen, W. Hermsen, J. Kaastra, F. Lebrun, M. Renaud, R. Terrier, M. DeBecker, G. Rauw, and J.-P. Swings</i>	L21
EVENT RATE FOR EXTREME MASS RATIO BURST SIGNALS IN THE LASER INTERFEROMETER SPACE ANTENNA BAND <i>Louis J. Rubbo, Kelly Holley-Bockelmann, and Lee Samuel Finn</i>	L25
NEAR-INFRARED POLARIZATION IMAGES OF THE ORION NEBULA <i>M. Tamura, R. Kandori, N. Kusakabe, Y. Nakajima, J. Hashimoto, C. Nagashima, T. Nagata, T. Nagayama, H. Kimura, T. Yonamoto, J. H. Hough, P. Lucas, A. Chrysostomou, and J. Bailey</i>	L29
THE WATER VAPOR ABUNDANCE IN ORION KL OUTFLOWS <sup>Ⓔ</sup> <i>José Cernicharo, Javier R. Goicoechea, Fabien Daniel, Mercedes R. Lerate, Michael J. Barlow, Bruce M. Swinyard, Ewine F. van Dishoeck, Tanya L. Lim, Serena Viti, and Jeremy Yates</i>	L33
THE SPITZER c2d SURVEY OF NEARBY DENSE CORES. II. DISCOVERY OF A LOW-LUMINOSITY OBJECT IN THE "EVOLVED STARLESS CORE" L1521F <i>Tyler L. Bourke, Philip C. Myers, Neal J. Evans II, Michael M. Dunham, Jens Kauffmann, Yancy L. Shirley, Antonio Crapsi, Chadwick H. Young, Tracy L. Huard, Timothy Y. Brooke, Nicholas Chapman, Lucas Cieza, Chang Won Lee, Peter Teuben, and Zahed Wahhaj</i>	L37
EVERSHED CLOUDS AS PRECURSORS OF MOVING MAGNETIC FEATURES AROUND SUNSPOTS <i>D. Cabrera Solana, L. R. Bellot Rubio, C. Beck, and J. C. del Toro Iniesta</i>	L41
TEMPORAL CHANGES IN SUNSPOT UMBRAL MAGNETIC FIELDS AND TEMPERATURES <i>M. J. Penn and W. Livingston</i>	L45
FIRST POLARIMETRIC MEASUREMENTS AND MODELING OF THE PASCHEN-BACK EFFECT IN CaH TRANSITIONS <sup>Ⓔ</sup> <i>S. V. Berdyugina, D. M. Fluri, R. Ramelli, M. Biana, D. Gisler, and J. O. Stenflo</i>	L49
LABORATORY MEASUREMENTS OF THE HYPERFINE STRUCTURE OF H <sup>14</sup> N <sup>12</sup> C AND D <sup>14</sup> N <sup>12</sup> C <i>Hans A. Bechtel, Adam H. Steeves, and Robert W. Field</i>	L53
INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION	Inside Back Cover
INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION	Back Cover

2006 OCTOBER 1, NUMBER 2

	Page
ACTIVE GALACTIC NUCLEUS OUTFLOWS AND THE MATTER POWER SPECTRUM <i>Robyn Levine and Nikolay Y. Gnedin</i>	L57
THE DEUTERIUM-TO-HYDROGEN ABUNDANCE RATIO TOWARD THE QSO SDSS J155810.16-003120.0 <sup>Ⓔ</sup> <i>John M. O'Meara, Scott Burles, Jason X. Prochaska, Gabe E. Prochter, Rebecca A. Bernstein, and Kristin M. Burgess</i>	L61

SPITZER IRAC CONFIRMATION OF $z_{\text{drop}}$ -DROPOUT GALAXIES IN THE HUBBLE ULTRA DEEP FIELD: STELLAR MASSES AND AGES AT $z \approx 7$ <i>Ivo Labbé, Rychard Bouwens, G. D. Illingworth, and M. Franx</i>	L67
SPECTROSCOPIC IDENTIFICATION OF MASSIVE GALAXIES AT $z \sim 2.3$ WITH STRONGLY SUPPRESSED STAR FORMATION <i>Mariska Kriek, Pieter G. van Dokkum, Marijn Franx, Ryan Quadri, Eric Gawiser, David Herrera, Garth D. Illingworth, Ivo Labbé, Paulina Lira, Danilo Marchesini, Hans-Walter Rix, Gregory Rudnick, Edward N. Taylor, Sune Toft, C. Megan Urry, and Stijn Wuyts</i>	L71
THE STELLAR POPULATION OF STRIPPED CLUSTER SPIRAL NGC 4522: A LOCAL ANALOG TO K+A GALAXIES? <i>Hugh H. Crowl and Jeffrey D. P. Kenney</i>	L75
MINOR MERGER ORIGIN FOR THE CIRCUMNUCLEAR STARBURST IN NGC 7742 <i>L. M. Mazzuca, M. Sarzi, J. H. Knapen, S. Veilleux, and R. Swaters</i>	L79
RR LYRAE STARS IN THE BOÖTES DWARF SPHEROIDAL GALAXY <i>Michael H. Siegel</i>	L83
OPTICAL AND INFRARED EMISSION FROM THE ANOMALOUS X-RAY PULSARS AND SOFT GAMMA-RAY REPEATERS <i>Ü. Ertan and Ş. Çalişkan</i>	L87
A HARD X-RAY VIEW OF SCORPIUS X-1 WITH INTEGRAL: NONTHERMAL EMISSION? <i>T. Di Salvo, P. Goldoni, L. Stella, M. van der Klis, A. Buzzano, L. Burderi, R. Farinelli, F. Frontera, G. L. Israel, M. Méndez, I. F. Mirabel, N. R. Robba, P. Sizin, P. Ubertini, and W. H. G. Lewin</i>	L91
IS PSR B0943+10 A LOW-MASS QUARK STAR? <i>Y. L. Yue, X. H. Cui, and R. X. Xu</i>	L95
THE TURN-ON OF MASS TRANSFER IN AM CVn BINARIES: IMPLICATIONS FOR RX J0806+1527 AND RX J1914+2456 <i>Christopher J. Deloye and Ronald E. Taam</i>	L99
GCIRS 16SW: A MASSIVE ECLIPSING BINARY IN THE GALACTIC CENTER <i>F. Martins, S. Trippe, T. Paumard, T. Ott, R. Genzel, G. Rauw, F. Eisenhauer, S. Gillessen, H. Maness, and R. Abuter</i>	L103
LONG-WAVELENGTH EXCESSES IN TWO HIGHLY OBSCURED HIGH-MASS X-RAY BINARIES: IGR J16318–4848 AND GX 301–2 	L107
EXTRAORDINARILY HOT X-RAY EMISSION FROM THE O9 EMISSION-LINE STAR HD 119682 <i>Cara E. Rakowski, N. S. Schulz, S. J. Wolk, and Paola Testa</i>	L111
THE CARINA-NEAR MOVING GROUP <i>B. Zuckerman, M. S. Bessell, Inseok Song, and S. Kim</i>	L115
A KEPLERIAN GASEOUS DISK AROUND THE B0 STAR R MONOCEROTIS <i>A. Fuente, T. Alonso-Albi, R. Bachiller, A. Natta, L. Testi, R. Neri, and P. Planesas</i>	L119
THE DISCOVERY OF DIFFUSE X-RAY EMISSION IN NGC 2024, ONE OF THE NEAREST MASSIVE STAR-FORMING REGIONS <i>Y. Ezoe, M. Kokubun, K. Makishima, Y. Sekimoto, and K. Matsuzaki</i>	L123
OUTFLOWS DRIVEN BY GIANT PROTOPLANETS <i>Masahiro N. Machida, Shu-ichiro Inutsuka, and Tomoaki Matsumoto</i>	L129
ENCELADUS: A SOURCE OF NITROGEN AND AN EXPLANATION FOR THE WATER VAPOR PLUME OBSERVED BY CASSINI 	L133
ENERGETIC PARTICLE INTENSITIES AND ANISOTROPIES NEAR THE SOLAR WIND TERMINATION SHOCK <i>J. Giacalone and J. R. Jokipii</i>	L137
THE INFLUENCE OF FARADAY ROTATION ON THE VERTICAL ELECTRIC CURRENT DENSITY <i>J. T. Su, H. Q. Zhang, Y. Y. Deng, X. J. Mao, Y. Gao, and G. H. Lin</i>	L141
THE TRAVELING-WAVE MRI IN CYLINDRICAL TAYLOR-COUETTE FLOW: COMPARING WAVELENGTHS AND SPEEDS IN THEORY AND EXPERIMENT <i>Günther Rüdiger, Rainer Hollerbach, Frank Stefani, Thomas Gundrum, Gunter Gerbeth, and Robert Rosner</i>	L145
STRONG LSJ DEPENDENCE OF FLUORESCENCE YIELDS: BREAKDOWN OF THE CONFIGURATION-AVERAGE APPROXIMATION <i>M. F. Hasoglu, T. W. Gorczyca, K. T. Korista, S. T. Manson, N. R. Badnell, and D. W. Savin</i>	L149
INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION	Inside Back Cover
INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION	Back Cover

